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WASHINGTON, DC 20036-3307

EXAMINER

DIVECHA, KAMAL B

ART UNIT PAPER NUMBER

2151

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/046,784

Applicant(s)

ERIMLI, BAHADIR

Examiner

KAMAL B. DIVECHA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**Response to Arguments**

Claims 1-7 are pending in this application.

**Reopening of Prosecution After Appeal Brief or Reply Brief**

In view of the Appeal Brief filed on 3/27/06, PROSECUTION IS HEREBY REOPENED. The Office Action sets forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

## **DETAILED ACTION**

### **Specification**

The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and use the invention, i.e., failing to provide an enabling disclosure.

The test to be applied under the written description portion of 35 U.S.C. § 112, first paragraph, is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of later claimed subject matter. Vas-Cat, Inc. v. Mahurkar, 935 F. 2d 1555, 1565, 19 USPQ2d 111, 1118 (Fed. Cir. 1991), reh'g denied (Fed. Cir. July 8, 1991) and reh'g, en banc, denied (Fed. Cir. July 29, 1991).

The applicants have failed to provide an enabling disclosure in the detailed description of the embodiment. The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to support the subject matter set forth in these claims.

The claims recite "...the first storing step including storing in the first link field a first entry identifier for one the transmitted work queue entry and a subsequently transmitted work queue entry..."; "...a first link field configured for specifying a first entry identifier referencing one of the corresponding entry and another entry for a subsequently transmitted work queue entry relative to the corresponding entry, and a second link field configured for storing a second entry identifier referencing one of the corresponding entry and another entry having received a subsequent acknowledgement..."

However, the specification only suggests, "...the table includes entries that identify WQE having been transmitted according to a service protocol requiring acknowledgement. In

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particular, each entry 24 includes a WQE field 26, a first link field 28, and a second link field 30 (specification page 10 lines 6-9 and fig. 2)...”

Hence, the above claim limitations presents subject matter situations and was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, for the same reasons as set forth in objection to specification above.

**Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The claims as recited do not disclose a practical application or the utility that would enable the claims to produce concrete, useful and tangible results.

The claims do not produce concrete, useful and tangible results. The claims can be simply be implemented on a piece of paper.

For more information on 35 U.S.C. 101, please see the 101 Guidelines available on USPTO web site.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagan et al., (hereinafter Kagan, U. S. Patent No. 6,735,642 B2) in view of Avery (U. S. Patent No. 6,611,883 B1).

As per claim 1, Kagan discloses a method in a channel adapter configured for communications with a server network system (col. 1 L15-30), the method comprising:

- first storing, in a table configured for storing multiple entries, an entry having a work queue entry field that specifies a transmitted work queue entry, the entry including at least first and second link fields each configured for referencing another entry in the table, the first storing step including storing in the first link field a first entry identifier for one of the transmitted work queue entry and a subsequently transmitted work queue entry relative to the transmitted work queue entry, wherein the first link entry identifiers in the respective first link fields form a first linked list specifying a transmit sequence of the transmitted work queue entries (fig. 2, col. 1 L15-62, col. 6 L54 to col. 7 L67 and col. 8 L1-12);

- generating in the table a second linked list specifying work queue entries and a status field that tracks the completion status of the entry (fig. 2 and col. 2 L30-35, col. 7 L58-60 and col. 8 L56-67).

However, Kagan does not disclose the process of detecting an acknowledgment for at least a first of the transmitted work queue entries stored in the table; and generating in the table a second linked list specifying an acknowledgement sequence of the transmitted work queue entries by second storing, in the second link field of the entry corresponding to the first transmitted work queue entry, a second entry identifier based on the detecting step, the second entry identifier specifying one of the first transmitted work queue entry and an entry having received a subsequent acknowledgement relative to the detected acknowledgement.

Avery, from the same field of endeavor discloses the process of detecting an acknowledgement for at least a first of the transmitted work queue entries stored in the table and generating in the table a second linked list specifying an acknowledgement sequence of the transmitted work queue entries by second storing, in the second link field of the entry corresponding to the first transmitted work queue entry, a second entry identifier based on the detecting step, the second entry identifier specifying one of the first transmitted work queue entry and an entry having received a subsequent acknowledgement relative to the detected acknowledgement (fig. 7 item #754, 703, 705, 770 and col. 8 L43 to col. 11 L25 and col. 12 L1-45).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Kagan in view of Avery in order to detect an acknowledgement for the at least a first transmitted work queue entries stored in the table and generating in the table a second linked list specifying an acknowledgment sequence of the transmitted work queue entries by storing the identifier in the second linked list, since Avery



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expressly teaches the process of detecting and specifying the acknowledgement of the transmitted work queue entries in a table.

One of ordinary skilled in the art would have been motivated because it would have simply tracked the completion, outstanding and/or status of the DMA requests (i.e. read/ write processes, Avery, col. 3 L18-25, col. 9 L58-67).

As per claim 2, Kagan discloses the process wherein the first storing step includes storing the entry in a send queue table by a free buffer manager (col. 1 L32-35, col. 2 L60-65, col. 6 L54-59, col. 8 L1-12).

As per claim 3, Kagan does not disclose the process of parsing the second linked list to determine transmitted work queue entries awaiting acknowledgements.

Avery, from the same field of endeavor discloses the process of parsing the tracking the tracking section (checking second linked list) to determine transmitted work queue entries awaiting acknowledgement (col. 10 L48-60 and col. 9 L58-65).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Kagan in view of Avery in order to parse the linked list (i.e. an entry in a table) to determine transmitted work queue entries awaiting acknowledgement.

One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 1.

As per claim 4, Avery discloses the process of tracking (detecting or receiving) acknowledgement according to Infiniband protocol (col. 10 L48-59, fig. 3 and fig. 9B item #922).

As per claim 5, Kagan discloses a channel adapter (col. 7 L19-28) comprising:  
a table configured for storing entries identifying respective work queue entries having been transmitted according to a service protocol requiring receipt of the completion status (fig. 2), each entry including:

a work queue entry field configured for specifying the corresponding work queue entry (fig. 2),

a first link field configured for specifying a first entry identifier referencing one of the corresponding entry and another entry for a subsequent transmitted work queue entry relative to the corresponding entry (fig. 2 item #42, 52, 44), and

a second link field configured for storing a second entry identifier referencing one of the corresponding entry and another entry having a subsequent completion status (fig. 2);

a table manager configured for adding the table entries based on transmission of the respective work queue entries, the table manager configured for inserting the corresponding first entry identifier based on the subsequently transmitted work queue entry, the table manager configured for inserting the corresponding second entry identifier based on the entry having received the subsequent completion status, the first and second link fields forming first and second linked lists identifying a transmit sequence of the transmitted work queue entries and a completion status sequence of the transmitted work queue entries, respectively (col. 1 L15-65, col. 2 L56 to col. 3 L6, col. 6 L54 to col. 7 L25, col. 7 L29 to col. 8 L13).

However, Kagan does not disclose an acknowledgment detector configured for detecting an acknowledgment for the work queue entries and inserting the acknowledgement identifier in the table.

Avery, from the same field of endeavor discloses the process of detecting an acknowledgement for at least a first of the transmitted work queue entries stored in the table and generating in the table a second linked list specifying an acknowledgement sequence of the transmitted work queue entries by second storing, in the second link field of the entry corresponding to the first transmitted work queue entry, a second entry identifier based on the detecting step, the second entry identifier specifying one of the first transmitted work queue entry and an entry having received a subsequent acknowledgement relative to the detected acknowledgement (fig. 7 item #754, 703, 705, 770 and col. 8 L43 to col. 11 L25 and col. 12 L1-45).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Kagan in view of Avery in order to detect an acknowledgement for the at least a first transmitted work queue entries stored in the table and generating in the table a second linked list specifying an acknowledgment sequence of the transmitted work queue entries by storing the identifier in the second linked list, since Avery expressly teaches the process of detecting and specifying the acknowledgement of the transmitted work queue entries in a table.

One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 1.

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As per claim 6-7, they do not teach or further define over the limitations in claims 1-5.

Therefore, claims 6-7 are rejected for the same reasons as set forth in claims 1-5.

**Additional References**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Avery, U. S. Patent No: 6,622,193 B1.
- b. Avery, U. S. Patent No. 6,813,653 B2.
- c. Kagan et al., Pub. No.: US 2002/0165899 A1: Multiple Queue Pair Access with Single Doorbell.

**Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is 571-272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kamal Divecha  
Art Unit 2151  
June 8, 2006.



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